

IN THE CLAIMS

Please cancel claim 9. Please amend the following claims which are pending in the present application.

1. (Currently amended) A voice access system for enabling voice access to an enterprise data system, comprising:

a voice recognition unit to, including:

a processor;

a telephony interface coupled to the processor to enable the voice recognition unit to receive user input via a telephone connection;; and

a network interface coupled to the processor to enable the voice recognition unit to be linked in communication with the enterprise data system via a computer network; and

a memory in which a plurality of machine executable instructions are stored comprising a plurality of software modules; and

a speech processing server, including:

a processor;

a network interface coupled to the processor to enable the voice recognition unit to be linked in communication with the voice recognition unit via a computer network; and

~~a memory in which a plurality of machine executable instructions are stored~~
~~comprising a plurality of software modules,~~

~~wherein the software modules when executed by the processors of the voice~~
~~recognition unit and the speech processing server interact with each other to~~
~~perform operations comprising:~~

~~—— enabling a user to establish a telephone connection with the voice~~
~~recognition unit;~~

~~enabling the user input to requesting an ad hoc query be performed against~~
~~data stored by the enterprise data system using a spoken natural language~~
~~query[[:]],~~

~~determining query criteria corresponding to the ad hoc query request by the~~
~~user;~~

~~to sending the query criteria corresponding to the ad hoc query request to the~~
~~enterprise data system[[:]],~~

~~receiving to receive data from the enterprise data system based on the query~~
~~criteria[[:]], and~~

~~providing to provide feedback data corresponding to data received from the~~
~~enterprise data system in a verbal format to the user via the telephone~~
~~connection[[:]], and~~

~~a speech processing server, coupled to the voice recognition unit via a~~
~~computer network, to determine the query criteria by converting the spoken natural~~

language query into a data request in a text form and identifying one or more objects and data criteria corresponding to the spoken natural language query based on the data request.

2. (Currently amended) The voice access system of claim 1, wherein the voice recognition unit is further to: ~~execution of the plurality of software modules by the processors of the voice recognition unit and the speech processing server further performs the operations of:~~

~~authenticating~~ authenticate the user with the voice access system using a login process in which the user is identified by a unique user identifier;

~~determining~~ determine enterprise log-in data that enables the user to access the enterprise data system, based on the unique user identifier for the voice access system; and

automatically log[[ging]] the user into the enterprise data system using the enterprise data system log-in data.

3. (Currently amended) The voice access system of claim 2, wherein the voice recognition unit is linked in communication with a local database in which a plurality of unique identifiers and corresponding pass-codes are stored, and wherein the voice recognition unit is further to ~~access system authenticates the user by performing operations comprising:~~

~~receiving~~ receive user-identification information from the user via the telephone connection;

~~comparing~~ compare the user-identification information with user-identification data stored in the local database; and

~~authenticating~~ authenticate the user if the user-identification information received from the user matches the user-identification data stored in the local database.

4. (Currently amended) The voice access system of claim 1, wherein ~~one of said plurality of software modules stored in the memory of the voice recognition unit~~ comprises a client-side module that enables the voice recognition unit to access the enterprise data system as a client.

5. (Currently amended) The voice access system of claim 1, wherein ~~one of said plurality of software modules stored in the memory of the speech processing server~~ the voice recognition unit comprises a voice recognition component that converts voice waveform data into text data.

6. (Currently amended) The voice access system of claim 5, wherein the voice recognition ~~component~~ unit comprises a voice recognition server and ~~one of said plurality of software modules stored in the memory of the voice recognition unit~~

~~comprises a voice recognition client, and wherein execution of the voice recognition client and server performs operations comprising:~~

~~The voice recognition client to submit[[ting]] voice waveform data from the voice recognition client to the voice recognition server[[:]], and the voice recognition server to~~

~~convert[[ing]] the voice waveform data into text data with the voice recognition server, and to~~

~~send[[ing]] the text data from the voice recognition server back to the voice recognition client.~~

7. (Currently amended) The voice access system of claim 1, wherein ~~one of~~ said plurality of software modules stored in the memory of the voice recognition unit includes a voice application ~~that~~ to manages interactions between users of the voice access system and the voice access system.

8. (Currently amended) The voice access system of claim 1, wherein ~~one of~~ said plurality of software modules stored in the memory of the speech processing server the voice recognition unit includes a text-to-speech server ~~that~~ to converts text data into computer-generated audible speech corresponding to the data retrieved from the enterprise data system.

9. (Cancelled)

10. (Currently amended) The voice access system of claim ~~[[9]]~~ 1, wherein the enterprise data system includes an object manager and data manager, wherein ~~execution of said plurality of software modules by the processor of the voice recognition unit further performs the operation of~~ the voice recognition unit is further to pass~~[[ing]]~~ information corresponding to any objects and data criteria that are identified to the object manager,

wherein the enterprise data system formulates a data query based on the objects and data criteria passed to the object manager in consideration of enterprise database schema information available to the data manager and returns data retrieved by the data query to the voice recognition unit.

11. (Currently amended) The voice access system of claim 1, wherein ~~execution of the plurality of software modules by the processors of the voice recognition unit and the speech processing server further performs the operations of~~ the voice recognition unit is further to:

~~authenticating~~ authenticate the user with the voice access system using a login process in which the user is identified by a unique user identifier;

~~retrieving~~ retrieve data pertaining to a selected object for the user from the enterprise database through use of the unique user identifier; and

~~providing~~ provide feedback data corresponding to any data that are retrieved in a verbal format to the user via the telephone connection.

12. (Currently amended) A voice access system for enabling voice access to an enterprise data system, comprising:

a voice recognition unit, including:

~~a processor;~~

~~an telephony interface coupled to the processor to enable the voice recognition unit to receive user input via a telephone connection; and~~

~~a network interface coupled to the processor to enable the voice recognition unit to be linked in communication with the enterprise data system via a computer network; and~~

~~a memory in which a plurality of machine executable instructions are stored comprising a plurality of software modules; and~~

~~a speech processing server, including:~~

~~a processor;~~

~~a network interface coupled to the processor to enable the voice recognition unit to be linked in communication with the voice recognition unit via a computer network; and~~

~~a memory in which a plurality of machine executable instructions are stored comprising a plurality of software modules;~~

~~wherein the software modules when executed by the processors of the voice recognition unit and the speech processing server interact with each other to perform operations comprising:~~

~~enabling a user to establish a telephone connection to a voice access system;~~
~~providing the voice recognition unit including~~ a voice user interface ~~[[that]]~~
~~to enable[[s]]~~ the user to navigate and query data from a plurality of domains using
spoken navigation and natural language query commands, wherein each domain
comprises data corresponding to a respective type of object in the enterprise data
system~~[[:]]~~, and

~~providing to provide~~ feedback data in a verbal format to the user via the
telephone connection in response to spoken navigation and natural language query
commands, said feedback data including data corresponding to data retrieved from
the enterprise data system in response to the natural language query commands and
system prompts in response to the spoken navigation commands.

13. (Currently amended) The voice access system of claim 12, wherein
~~execution of the plurality of software modules by the processors of the voice~~
~~recognition unit and the speech processing server further performs the operations of~~
the voice recognition unit is further to:

~~authenticating~~ authenticate the user with the voice access system using a
login process in which the user is identified by a unique user identifier;

~~determining~~ determine enterprise log-in data that enables the user to access
the enterprise data system, based on the unique user identifier for the voice access
system; and

automatically log[[ging]] the user into the enterprise data system using the enterprise data system log-in data.

14. (Currently amended) The voice access system of claim 12, wherein the data ~~received~~ retrieved from the enterprise data system includes a plurality of data sets pertaining to an object to which the ad-hoc query corresponds to, and wherein the voice recognition unit is further to ~~execution of the plurality of software modules by the processors of the voice recognition unit and the speech processing server further performs the operation of enabling~~ enable the user to browse the plurality of data sets.

15. (Currently amended) The voice access system of claim 12, wherein the ad-hoc query comprises a request to retrieve data corresponding to a domain the user is currently in and the data ~~received~~ retrieved from the enterprise data system includes a plurality of data sets comprising header data identifying items pertaining to the ~~current domain~~ the user is currently in, and wherein ~~execution of the plurality of software modules by the processors of the voice recognition unit and the speech processing server further performs the operations of~~ the voice recognition unit is further to:

~~enabling~~ enable the user to browse the header data on an item-by-item basis using navigation commands; and

read[[ing]] the header data corresponding to each item in response to a user navigation to that item. [[.]]

16. (Currently amended) The voice access system of claim 15, wherein ~~execution of the plurality of software modules by the processors of the voice recognition unit and the speech processing server further performs the operations of~~ the voice recognition unit is further to:

~~enabling~~ enable the user to request detail information corresponding to an item that is currently being browsed;

~~generating~~ generate a data request to receive detail information from the enterprise data system corresponding to the item currently being browsed;

submit[[ting]] the data request to the enterprise data system;

~~receiving~~ receive data from the enterprise data system comprising detail information corresponding to the item currently being browsed; and

read[[ing]] the detail information to the user via the telephone connection.

17. (Currently amended) The voice access system of claim 12, wherein ~~execution of the plurality of software modules by the processors of the voice recognition unit and the speech processing server further performs the operations of~~ the voice recognition unit is further to:

maintain[[ing]] navigation tracking information for the user that identifies navigation locations the user has previously navigated to; and

selecting system prompts based on the navigation tracking information for the user such that the user is presented with a different system prompt if the user has not previously navigated to a current navigation location than the user is presented with if the user has previously navigated to the current navigation location.

18. (Currently amended) A voice access system for enabling voice access to an enterprise data system, comprising:

a voice recognition unit, including:

a processor;

~~an telephony interface coupled to the processor to enable the voice recognition unit to receive user input via a telephone connection, the user input requesting an ad hoc query be performed using a spoken natural language query, to retrieve data corresponding to the ad hoc query, and to provide feedback data corresponding to the retrieved data in a verbal format to the user via the telephone connection; [[and]]~~

~~a network interface coupled to the processor to enable the voice recognition unit to be linked in communication with the enterprise data system via a computer network; and~~

~~a memory in which a plurality of machine-executable instructions are stored comprising a plurality of software modules; and~~

a speech processing server, coupled to the voice recognition unit via a computer network, to convert the spoken natural language query into a data request; and

a local database, coupled to the voice recognition unit and the speech processing server via the computer network, to store pre-compiled data in a form corresponding to a set of grammars comprising a language and syntax defining a format in which data are phonetically represented,

wherein the data is retrieved from at least one of the enterprise data system and the local database, including:

a processor;

a network interface coupled to the processor to enable the voice recognition unit to be linked in communication with the voice recognition unit and a local database via a computer network;

a memory in which a plurality of machine executable instructions are stored comprising a plurality of software modules; and

a storage device in which a set of grammars comprising a language and syntax defining a format in which data are phonetically represented are stored,

wherein the software modules when executed by the processors of the voice recognition unit and the speech processing server interact with each other to perform operations comprising:

retrieving selected data from the enterprise data system;

~~pre-compiling the data into a form corresponding to the set of grammars;~~
~~storing the pre-compiled data in a local database that is apart from the~~
~~enterprise data system~~
~~enabling a user to establish a telephone connection with the voice access~~
~~system;~~
~~enabling the user to request an ad hoc query be performed against data~~
~~stored in the enterprise data system and/or local database using a spoken natural~~
~~language query;~~
~~converting the spoken natural language query into a data request and~~
~~retrieving data from the enterprise data system and/or local database~~
~~corresponding to the ad hoc query; and~~
~~providing feedback data corresponding to data that are retrieved in a verbal~~
~~format to the user via the telephone connection.~~

19. (Original) The voice access system of claim 18, wherein header data that are used to identify objects are stored in the local database while detail data corresponding to the objects are stored in the enterprise data system.

20. (Currently amended) The voice access system of claim ~~[[18]]~~ 34, wherein ~~execution of the plurality of software modules by the processors of the voice recognition unit and the speech processing server further performs the operations of~~
the compilation server further to:

~~enabling enable~~ an administrator to define a set of objects for which data in the enterprise data system are to be pre-compiled;

~~enabling enable~~ the administrator to define a schedule identifying when data corresponding to the set of objects are to be pre-compiled; and

automatically pre-compile~~[[ing]]~~ data corresponding to those objects based on the schedule.

21. (Currently amended) A voice access system for enabling voice access to an enterprise data system, comprising:

a voice recognition unit~~, including:~~

~~a processor;~~

~~an telephony interface coupled to the processor to enable the voice recognition unit to receive user input via a telephone connection; and~~

~~a network interface coupled to the processor to enable the voice recognition unit to be linked in communication with the enterprise data system via a computer network; and~~

~~a memory in which a plurality of machine executable instructions are stored comprising a plurality of software modules; and~~

~~a speech processing server, including:~~

~~a processor;~~

~~a network interface coupled to the processor to enable the voice recognition unit to be linked in communication with the voice recognition unit via a computer network; and~~

~~a memory in which a plurality of machine-executable instructions are stored comprising a plurality of software modules,~~

~~wherein the software modules when executed by the processors of the voice recognition unit and the speech processing server interact with each other to perform operations comprising:~~

~~enabling a user to establish a telephone connection to a voice access system;~~

~~— authenticating to authenticate the user with the voice access system using a login process in which the user is identified by a unique user identifier[[:]];~~

~~enabling to enable the user to request to call a person or entity using a spoken command[[:]];~~ to

~~determining determine a telephone number for the person or entity through query of the enterprise data system in response to the spoken command[[:]];~~ and

~~to transfer[[ring]] the initial telephone connection to a new connection that connects the user with the person or entity via the telephone number for the person or entity.~~

22. (Currently amended) The voice access system of claim 21, wherein execution of the plurality of software modules by the processors of the voice recognition unit and the speech processing server further performs the operations of the voice recognition unit further to:

~~determining~~ determine enterprise log-in data that enables the user to access the enterprise data system, based on the unique user identifier for the voice access system; and

automatically ~~logging~~ the user into the enterprise data system using the enterprise data system log-in data[[:]].

23. (Currently amended) The voice access system of claim 21, wherein ~~execution of the plurality of software modules by the processors of the voice recognition unit and the speech processing server further performs the operation of~~ the voice recognition unit is further to reconnecting the user to the voice access system after the call to the person or entity has been completed.

24. (Original) The voice access system of claim 23, wherein the user is reconnected to the voice access system such that the user is returned to a navigation context that the user had prior to transfer of the initial telephone connection to the new connection.

25. (New) The voice access system of claim 1, wherein the voice recognition unit comprises a telephony interface for receiving the user input via the telephone connection.

26. (New) The voice access system of claim 1, wherein the voice recognition unit comprises a network interface to couple the voice recognition unit to the enterprise data system via the computer network.

27. (New) The voice access system of claim 1, wherein the speech processing server comprises a network interface to couple the speech processing server to the voice recognition unit via the computer network.

28. (New) The voice access system of claim 12, wherein the voice recognition unit comprises a telephony interface for receiving the user input via the telephone connection.

29. (New) The voice access system of claim 12, wherein the voice recognition unit comprises a network interface to couple the voice recognition unit to the enterprise data system via the computer network.

30. (New) The voice access system of claim 12, further comprising a speech processing server having a network interface to couple the speech processing server to the voice recognition unit via the computer network.

31. (New) The voice access system of claim 18, wherein the voice recognition unit comprises a telephony interface for receiving the user input via the telephone connection.

32. (New) The voice access system of claim 18, wherein the voice recognition unit comprises a network interface to couple the voice recognition unit to the enterprise data system via the computer network.

33. (New) The voice access system of claim 18, wherein the speech processing server comprises a network interface to couple the speech processing server to the voice recognition unit via the computer network.

34. (New) The voice access system of claim 18, further comprising a compilation server, coupled to the enterprise data system and the local database, to pre-compile the data into a form corresponding to the set of grammars.

35. (New) The voice access system of claim 21, wherein the voice recognition unit comprises a telephony interface for receiving the user input via the telephone connection.

36. (New) The voice access system of claim 21, wherein the voice recognition unit comprises a network interface to couple the voice recognition unit to the enterprise data system via the computer network.

37. (New) The voice access system of claim 21, further comprising a speech processing server having a network interface to couple the speech processing server to the voice recognition unit via the computer network.